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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/734,761
Filing Date: December 10, 2003
Appellant(s): MCKNIGHT ET AL.

Volel Emile
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/16/2007 appealing from the Office action mailed 11/15/2006.

Response to Remand

In response to the 'Administrative Remand to the Examiner' mailed June 6, 2009, claims 1-10 are a patent eligible process under 35 USC 101. The specification does not disclose the method plotting numerical data comprising the step selecting a root object, presenting to a user for selection at one filter, receiving filters, selecting a set of objects based on the filters, arranging, and plotting can be performed without the use of a machine that has been programmed to carry out these steps. Also, the steps cannot be performed mentally or manually in a matter that reasonably accomplishes the intended purpose of the invention. Further, please note the specification at paragraphs 0006-0008 and 0027-0028 (at the use of schema which is defined as a description of a database to a DBMS in the language provided by the DBMS. A schema defines aspects of the database, such as attributes and domains and parameters of the attributes).

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Hellerstein et al. ('Hellerstein' hereinafter) (Patent Number 6,836,894), Chandra et al. ('Chandra' hereinafter) (Patent Number 6,216,132).

(9) Grounds of Rejection

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-20,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellerstein et al. ('Hellerstein' hereinafter) (Patent Number 6,836,894) in view of Chandra et al. ('Chandra' hereinafter) (Patent Number 6,216,132).

As per claim 1, Hellerstein teaches

"presenting to a user for selection at least one filter, each of said at least one filter describing at least one of a type of objects and a type of relationships between objects, each type of objects and each type of relationships between objects being defined by a schema" (column 11, lines 7-24);

"receiving one or more user-selected filters" (column 11, lines 7-24);

"based on said one or more user-selected filters, selecting a set of objects … each object of said set containing numerical data having a format suitable for a mathematical analysis" (column 11, lines 24-30);

"arranging said mathematical analysis of said numerical data" (column 11, lines 31-41);

"and plotting a result of said mathematical analysis of said numerical data on a graph" (column 11, lines 31-41).

Hellerstein does not explicitly indicate "selecting a root object … each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical".

However, Chandra discloses "selecting a root object … each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical" (tree where each level corresponds to attribute, column 5, lines 34-46).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "selecting a root object … each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 2, Hellerstein teaches

"obtaining said schema" (structured log descriptor, column 7, line 65 through column 8, line 34);

"and populating said schema" (normalized data matrix, column 8, lines 35-51)

Hellerstein does not explicitly indicate "with said root object and objects related to said root object".

However, Chandra discloses "with said root object and objects related to said root object" (column 5, lines 34-46).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "with said root object and objects related to said root object" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 3,

Hellerstein does not explicitly indicate "said schema has object descriptors for describing objects and relationship descriptors for describing possible relationships between objects, said schema associating specific relationship descriptors between specific object descriptors, and at least one of said object descriptors describing a type of numerical data".

However, Chandra discloses "said schema has object descriptors for describing objects and relationship descriptors for describing possible relationships between objects, said schema associating specific relationship descriptors between specific object descriptors, and at least one of said object descriptors describing a type of numerical data" (column 5, lines 34-46).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "said schema has object

descriptors for describing objects and relationship descriptors for describing possible relationships between objects, said schema associating specific relationship descriptors between specific object descriptors, and at least one of said object descriptors describing a type of numerical data" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 4,

Hellerstein does not explicitly indicate "said one or more user-selected filters comprise at least one relationship filter describing a given relationship for selecting objects having said given relationship with a parent object, and at least one object filter describing a given object type for selecting objects having said given object type".

However, Chandra discloses "said one or more user-selected filters comprise at least one relationship filter describing a given relationship for selecting objects having said given relationship with a parent object, and at least one object filter describing a given object type for selecting objects having said given object type" (filter attributes, column 5, lines 54-63 and column 6, lines 7-17).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "said one or more user-selected filters comprise at least one relationship filter describing a given relationship for selecting objects having said given relationship with a parent object, and at least one

object filter describing a given object type for selecting objects having said given object type" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 5,

Hellerstein does not explicitly indicate "said given relationship is one of an attribute relationship and a content relationship".

However, Chandra discloses "said given relationship is one of an attribute relationship and a content relationship" (column 6, lines 7-17).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "said given relationship is one of an attribute relationship and a content relationship" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 6,

Hellerstein does not explicitly indicate "at least one of said relationship descriptors describes a format relationship and said one or more user-selected filters

comprise a format filter describing a given format for selecting objects containing numerical data having said given format".

However, Chandra discloses "at least one of said relationship descriptors describes a format relationship and said one or more user-selected filters comprise a format filter describing a given format for selecting objects containing numerical data having said given format" (column 6, lines 7-17).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "at least one of said relationship descriptors describes a format relationship and said one or more user-selected filters comprise a format filter describing a given format for selecting objects containing numerical data having said given format" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 7,

Hellerstein does not explicitly indicate "said root object is selected based on a user input".

However, Chandra discloses "said root object is selected based on a user input" (consumer registers, column 4, lines 42-54).

It would have been obvious to one of ordinary skill in the art to combine Hellerstein and Chandra because using the steps of "said root object is selected based

on a user input" would have given those skilled in the art the tools to improve the invention by enabling the user to use any filtering criterion expressible with the available predicates. This gives the user the advantage of being able to choose which data to view and analyze.

As per claim 8,

"selecting said mathematical analysis based on a user input" (column 11, lines 42-54; column 12, lines 5-15).

As per claim 9,

"said presenting comprises displaying at least one menu having at least one selectable item" (column 11, lines 7-24).

As per claim 10,

"said at least one menu comprises at least one menu providing one or more relationships for selection, and at least one menu providing one or more types of objects for selection" (column 11, lines 7-24).

As per claims 11-20,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 1-10 and are similarly rejected.

As per claim 22,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

(10) Response to Argument

With respect to the outstanding 35 USC 103 rejection of claim 1, and all claims which depend therefrom, Applicant argues that Hellerstein in view of Chandra does not teach "a filter that describes a type of objects and a type of relationship between objects wherein each type of objects and each type of relationships between objects are defined by a schema". It is respectfully submitted that Hellerstein teaches:

> "We now further describe the processes of selection/filtering. FIG. 13 illustrates an exemplary process that occurs when the select button 880 or filter button 882 is pushed (activated). When the "Select" or "Filter" button is pushed by a user, the attribute viewer first gets highlighted items from the attribute tables (step 900). Then, the viewer defines SetOfAttributeConstraint based on the highlighted items (step 910). The viewer further gets the IsGlobal information, that is, determines if the global indicator 884 has been selected (step 915). Finally, the attribute viewer calls its SelectFilterData function with SetOfAttributeConstraint and IsGlobal as parameters (step 920). It is to be appreciated that selection (via a select button) generally refers to the operation where a user selects events of interest, while filtering (via a filter button) generally refers to the operation where a user excludes events that are not of interest." (column 11, lines 7-24)

Clearly, Hellerstein discloses filtering and the filtering describes points on the plot (see Hellerstein, Figure 13). Applicant argues that these points are not a type of

object and that there is no type of relationship between objects, however Hellerstein describes the points on the plot as objects as follows:

> "FIG. 6A illustrates an exemplary data structure of extended structured log 330, which is very similar to structured log 120, but adds new entries for control purposes. Viewer List 510 describes which viewers are qualified for reading/writing the event data. Extended normalized data 500 is an extension of normalized data 220. Other components in the Elog 330 are the same as described in the context of FIG. 3A.
>
> "FIG. 6B illustrates an exemplary data structure of extended normalized data.
>
> "Extended normalized data (500) has all information as in normalized data plus additional control information (e.g., display color) and attribute constraint (i.e., which attribute values are selected or filtered).
>
> "FIG. 7 specifies exemplary methods used by the SCE 130. Among them, several "get" operations (e.g., GetAttributeList, GetSymbolTable, GetData, GetSummaryData, GetControlData, GetParsingData) are used to access partial information of data ConstraintElog is used to select/filter data based on provided constraints. This operation modifies the Elog if the operation is indicated as global. Update Viewer is to inform related viewers that data has been changed. The implementation of these methods is straightforward, and will not be further explained." (column 9, lines 12-36)

Hellerstein describes the source of what becomes the plot data and clearly shows that this data is read into memory as a list and tables, with the source being a structured log (Figure 6A) from which the extended normalized data is constructed (Figure 6B). The relationships between these objects is further disclosed by Hellerstein:

> "The real hostname and event-type name of these IDs can be found in the hostname symbol table and the event-type symbol table. Attribute descriptors 210 define the organization of normalized data 220, and maintain the correspondence between the columns of normalized data 220 and the associated symbol tables (1 through N) 230. For example, a descriptor may define that the first column of normalized data is message ID, the second column is host ID, etc." (column 7, lines 18-22)

This description of the data shows storage in tables with relationships between the tables as typical in relational database systems (RDBMS), clearly showing a relationship between the objects and these relationships are described by schemas in such systems, the relations between the datapoints in Figure 13 of Hellerstein being shown visually. Therefore the limitation "a filter that describes a type of objects and a type of relationship between objects wherein each type of objects and each type of relationships between objects are defined by a schema" is clearly taught by Hellerstein.

Applicant also argues that Hellerstein in view of Chandra do not teach "based on one or more user-selected filters, selecting a set of objects … each object of said set containing numerical data having a format suitable for a mathematical analysis", it is respectfully submitted that the Hellerstein reference shows the filters which select objects as shown above. Applicant argues that Hellerstein does not disclose filtering but instead discloses selecting, yet Hellerstein clearly states "filter" and "filter button" repeatedly (in column 11, lines 7-24), and describes filtering as the user excluding events that are not of interest (column 11, lines 21-23). Further, Hellerstein explains:

> "FIG. 14 illustrates an exemplary plot viewer according to the invention. The plot viewer is designed to support event graph analysis. A primary way for a user to manipulate data in the plot viewer is to rubber-band an area of interest. In this embodiment, the plot viewer is a two dimensional plot, which represents an event as a point using any two attributes of an event as two axes."

This citation describes how a user selects the filter, and it is respectfully submitted that this meets the language of the limitation and if the Applicant has a

specific filter mechanism in mind the claim should explicitly reflect their intentions. It is therefore respectfully submitted that the limitation is obvious over Hellerstein.

Applicant also argues that Hellerstein in view of Chandra do not teach "each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical". It is respectfully submitted that the Chandra reference shows the limitation in the following citation:

> "Referring to FIG. 2a, search tree 103 includes, for instance, a root node 200, one or more intermediary nodes 202, and one or more leaf nodes 204. The tree also includes one or more levels 206, and each level corresponds to one filter attribute. For example, assume a filter represents a stock market example and the filter has the following three attributes: stock issue, stock price, and stock volume. Then, the first attribute, stock issue, would be at level 1, the second attribute, stock price, at level 2, and the third attribute, stock volume, at level 3. This example of a stock market filter with three attributes is only one example. Filters can have any number of attributes and can represent any type of data or information." (column 5, lines 34-46)

In this citation, Chandra discloses that the objects in a certain set (read in Chandra as nodes on certain level representing stock issue, price, or volume) are on the same level in the search tree. If nodes exist on the same level as each other then they have the same length from the root by definition (this is clear in Chandra's Figure 2a). It is therefore respectfully submitted that the limitation is obvious over Chandra.

Applicant further argues that a combination of Hellerstein and Chandra is not properly motivated, however it respectfully noted that these references each disclose a search mechanism and requisite filter, and on that basis the motivation to combine is found. The combination of the references discloses each and every limitation as shown above.

Conclusion:

It is respectfully submitted that a combination of the references cited disclose the claimed method of plotting numerical data. In light of the forgoing arguments, the Examiner respectfully requests the honorable Board of Appeals and Interferences to sustain the rejection.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Respectfully submitted,

/Jay Morrison/

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June 14, 2009

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